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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,436	10/02/2003	Lifeng Zhang	A01449	9011

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ROHM AND HAAS COMPANY
PATENT DEPARTMENT
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EXAMINER

ISSAC, ROY P

ART UNIT	PAPER NUMBER
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1623

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11/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/677,436	Applicant(s) ZHANG, LIFENG	
	Examiner Roy P. Issac	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4 and 6-24 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 6-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 10-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1623

Detailed Action

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/06/07 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 10-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et. al. (ACS Symposium Series, 765, 2000, 254-270; Of record) in view of Anderson et. al. (Polymeric Materials Science and Engineering, 79, 1998, 411-412; Of record) further in view of Emmons et. al. (U.S. Patent No. 4079028; PTO-1449).

Ma et. al. discloses complexations of beta-cyclodextrin with hydrophobically modified ethoxylated urethanes (HEUR). (Abstract). Ma et. al.

Art Unit: 1623

discloses the use of diisocyanate groups. (Page 261, Paragraph 2-3). Ma et. al teaches that stronger interaction between beta-cyclodextrin and thickeners is seen as the terminal hydrophobe size increases. HEURs are reported to displace phenolphthalein from cyclodextrin cavity. (Page 262, Paragraph 1). The recitation, "for a reduced viscosity hydrophobic thickener system for thickening a polymer-containing aqueous system" is considered an intended use of the composition. Note that it is well settled that "intended use" of a composition or product, e.g., "topical skin care composition", will not further limit claims drawn to a composition or product, so long as the prior art discloses the same composition comprising the same ingredients in an effective amount, as the instantly claimed. See, e.g., *Ex parte Masham*, 2 USPQ2d 1647 (1987) and *In re Hack* 114, USPQ 161. The recitations "wherein at least a portion of said cyclodextrin-containing compound is complexed with said hydrophobically modified associative thickner in such a ways that at least a portion of at least one said phobes at least partially fills said hydrophobic cavity" is considered a functional recitation of an inherent property of the composition. The compositions of Ma are expected to have the same properties because it consists of compounds recited in claims herein.

Ma et. al. does not expressly disclose a hydrophobically modified polyethoxylated urethane thickener comprising a one branched chain or straight chained diioscyanate functional group.

Anderson et. al. discloses that hexane diisocyanate HEURs are also considered thickeners. (Page 411, Column 2, Paragraph 3). Anderson teaches

Art Unit: 1623

that the use of hexane diisocyanate results in cleaner products and enhances the removal of urea. (Abstract).

Emmons et. al. discloses the use of a variety of diisocyanate compounds for the preparation of hydrophobically modified polymers. (Column 8, lines 45-68). The diisocyanate compounds disclosed include several of the compounds listed in claim 1, including 1,4 tetramethylene diisocyanate and hexamethylene diisocyanate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a hexane diisocyanate HEUR instead of a cyclohexane HEUR since the hexane HEUR was also recognized in the art as a thickener. One of ordinary skill in the art would have been motivated to use HEURs made with hexane diisocyanate because they were disclosed to have thickener properties and results in cleaner products. Therefore, one of ordinary skill in the art would have reasonably expected that the use of branched or straight chain HEURs would have resulted in substantially similar or better effects. Furthermore, choosing a thickener also known in the prior art with a hydrophobic end moiety to complex with cyclodextrin as claimed herein would have been within the routine skills of one of ordinary skill in the art. Herein, all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The substitution of one element for another, for example one of the well known

Art Unit: 1623

diisocyanate compounds, would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Thus the claimed invention as a whole is clearly prima facie obvious over the combined teachings of the prior art.

Response to Arguments

Applicant's arguments filed 9/06/07 have been fully considered but they are not persuasive. Applicants argue that as amended Anderson does not disclose any of the newly recited diisocyanates. However, Anderson discloses the use of hexane diisocyanate which is considered the same compound as the claimed 1,6-hexamethylene diisocyanate claimed herein. Furthermore, a series of diisocyanates are well known in the industry for attaching hydrophobic modifiers to polymers as disclosed in Emmons et. al. The rejection under section 103 is still deemed proper and is adhered to.

Claims 1-2 and 10-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenhart et. al. (U.S. Patent No. 5,137,571; Of Record), in view of Anderson et. al. (Polymeric Materials Science and Engineering, 79, 1998, 411-412; Of record) further in view of Emmons et. al. (U.S. Patent No. 4079028; PTO-1449).

Eisenhart discloses a method for improving thickeners by complexation of cyclodextrin with hydrophobic moieties on the thickener molecule. Eisenhart discloses 0.5 to about 2% cyclodextrin. (Column 4, line 68). Eisenhart discloses

Art Unit: 1623

solid content of 3% (Example 1; Column 7, lines 5-32), 8% solids (Example 5; Column 9, lines 28-31), and Acrysol RM-5 that contains 30% solids. (Table 18, Column 15, lines 5-10). Eisenhart discloses the use of polyethoxylated urethanes, and hydrophobically modified polyacrylamides. (Column 15, lines 40-50). The QR-708 thickener used in example 1 appears to be an ethoxylated polyurethane thickener. It is within the basic skills of one of ordinary skill in the art to vary the solid contents in the composition.

Eisenhart et. al. does not expressly disclose a hydrophobically modified polyethoxylated urethane thickener comprising a one branched chain or straight chained diisocyanate functional group.

Anderson et. al. discloses that hexane diisocyanate HEURs are also considered thickeners. (Page 411, Column 2, Paragraph 3). Anderson teaches that the use of hexane diisocyanate results in cleaner products and enhances the removal of urea. (Abstract).

Emmons et. al. discloses the use of a variety of diisocyanate compounds for the preparation of hydrophobically modified polymers. (Column 8, lines 45-68). The diisocyanate compounds disclosed include several of the compounds listed in claim 1, including 1,4 tetramethylene diisocyanate and hexamethylene diisocyanate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a hexane diisocyanate HEUR instead of a cyclohexane HEUR since the hexane HEUR was also recognized in the art as a thickener. One of ordinary skill in the art would have been motivated to use

Art Unit: 1623

HEURs made with hexane diisocyanate because they were disclosed to have thickener properties and results in cleaner products. Therefore, one of ordinary skill in the art would have reasonably expected that the use of branched or straight chain HEURs would have resulted in substantially similar or better effects. Furthermore, choosing a thickener also known in the prior art with a hydrophobic end moiety to complex with cyclodextrin as claimed herein would have been within the routine skills of one of ordinary skill in the art. Herein, all claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The substitution of one element for another, for example one of the well known diisocyanate compounds, would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Thus the claimed invention as a whole is clearly prima facie obvious over the combined teachings of the prior art.

Response to Arguments

Applicant's arguments filed 9/06/07 have been fully considered but they are not persuasive. Applicants argue that as amended Anderson does not disclose any of the newly recited diisocyanates. However, Anderson discloses the use of hexane diisocyanate which is considered the same compound as the claimed 1,6-hexamethylene diisocyanate claimed herein. Furthermore, a series

Art Unit: 1623

of diisocyanates are well known in the industry for attaching hydrophobic modifiers to polymers as disclosed in Emmons et. al. Applicants further argue that the only hydrophobically modified urethane thickener disclosed in Eisenhart, QR-708 is a baed on H12MDI which is not one of the diisocyantes listed in amended claim 1. However, the diisocyantes recited in claim 1 were well known to one of ordinary skill in the art at the time of the invention and exchanging one diisocyante moiety with another would have been well within the basic skill of one of ordinary skill in the art. As discussed above, both Anderson and Emmons disclose diisocyanate compounds of claim 1. Applicants further argue that none of the references cited comprise a hydrophobically modified aminoplast-ether copolymer. The polymers of Ma et. al. and Anderson et. al. are considered aminoplast-ether copolymers since they contain both aminoplast and ether groups. Note that aminoplast refers to a broad category of compounds. For example, Chan et. al. teaches that aminoplast refers to "plastic made from amino compounds". (Chan et. al., Scientia Horticulture, 114, 2007, 112-120: PTO-892). Furthermore, Ma discloses urea structure attached to polyethylene glycol which is considered a aminoplast-ether group. The rejection under section 103 is still deemed proper and is adhered to.

No Claim is allowed.

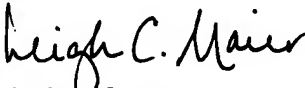
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roy P. Issac whose telephone number is 571-272-2674. The examiner can normally be reached on 9:00-5:00.

Art Unit: 1623

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Roy P. Issac
Patent Examiner
Art Unit 1623


Leigh C. Maier
Primary Examiner
Art Unit 1623